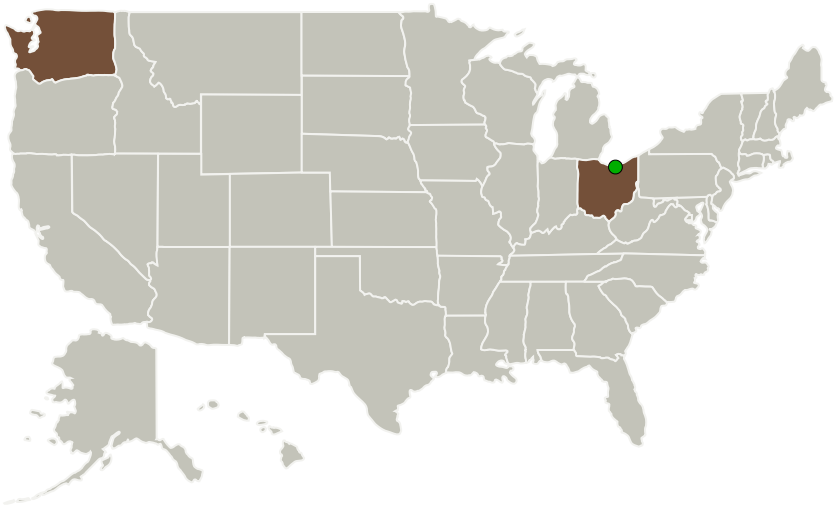
OpenSWIFT-SDR for STRS, Phase I

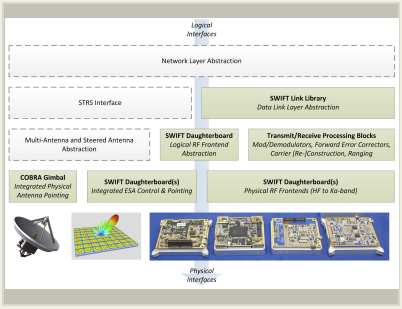
Completed Technology Project (2016 - 2016)

Project Introduction

SWIFT is a small-form factor, highly-capable software-defined radio (SDR) platform whose strength lies in its flexible and modular hardware and software interfaces. TUI proposes to augment this existing, proven platform to make it compatible with the Space Telecommunication Radio System (STRS) architecture and other open standards. Furthermore, TUI proposes to leverage other ongoing work in the area of high-gain antenna pointing and electrically-steered antenna (ESA) control to augment these existing standards with antenna pointing and multi-antenna abstraction interfaces. The proposed STRS augmentations and ?OpenSWIFT-SDR? architecture will allow them to scale to large, multi-body networked systems, especially systems operating at multiple frequencies with multiple, steered antennas. The large existing code-base, availability of mature hardware solutions, and the ability to operate coherently at S-, X-, K-, and Ka-bands while connecting to multiple antennas makes SWIFT an ideal platform for both TUI and others to develop the next generation of communications architectures and protocols for current and future NASA missions.

Primary U.S. Work Locations and Key Partners





OpenSWIFT-SDR for STRS, Phase I

Table of Contents

Small Business Innovation Research/Small Business Tech Transfer

OpenSWIFT-SDR for STRS, Phase I

Completed Technology Project (2016 - 2016)

Organizations Performing Work	Role	Type	Location
Tethers Unlimited Inc	Lead Organization	Industry	
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations	
Ohio	Washington

Project Transitions

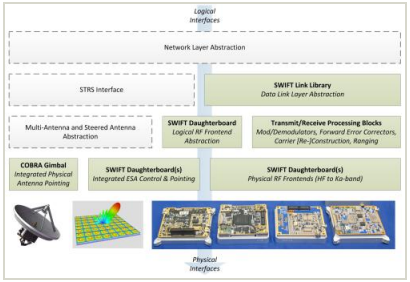
June 2016: Project Start

December 2016: Closed out

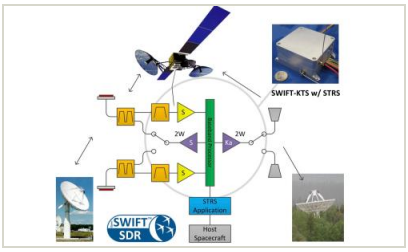
Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139730)*

Images



Briefing Chart Image
OpenSWIFT-SDR for STRS, Phase I
(https://techport.nasa.gov/image/135708)



Final Summary Chart Image
OpenSWIFT-SDR for STRS, Phase I Project Image
(https://techport.nasa.gov/image/131216)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Tethers Unlimited Inc

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

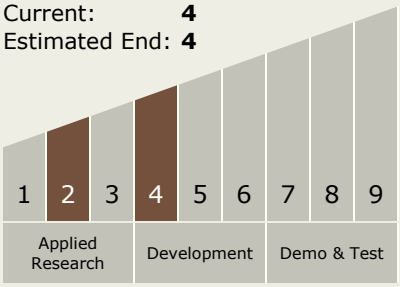
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Tyrel D Newton

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



OpenSWIFT-SDR for STRS, Phase I

Completed Technology Project (2016 - 2016)

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.2 Radio Frequency
    - TX05.2.6 Innovative Antennas

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System